

5.9 Problem Solving and Linear Relationships

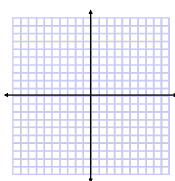
In pairs;
Find the Pt of Intersection between two lines

$$y = 3x - 2 \quad y = -2x + 8$$

Option #1 Solve Graphically

Option #2 Solve Trial and Error
Table of Values
Substitution

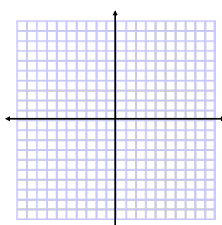
Option #3 Solve Algebraically



Apr 25-7:39 AM

5.9 Problem Solving and Linear Relationships

Finding the Pt of Intersection between two lines

$$y = 3x - 2 \quad y = -2x + 8$$


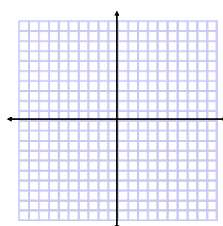
What properties exist at this point of intersection?
The same coordinates - on both lines

How can you prove this property?

Apr 25-7:39 AM

5.9 Problem Solving and Linear Relationships

Finding the Pt of Intersection between two lines

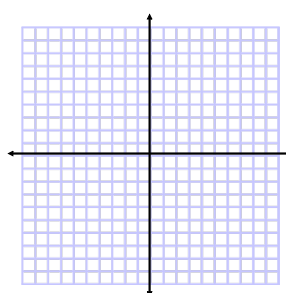
$$y = 3x - 2 \quad y = -2x + 8$$


What properties exist at this point of intersection?

How can you prove this property?

Apr 25-7:39 AM

Solve Pt of Intersection

$$y_1 = 4x - 5 \quad y_2 = x + 1$$


Pt of int
(2, 3)

Apr 27-11:57 AM

Solve Pt of Intersection Algebraically

$$y_1 = 4x - 5 \quad y_2 = x + 1$$

$$y_1 = y_2$$

$$4x - 5 = x + 1$$

$$4x - x - 5 = +1$$

$$3x - 5 = 1$$

$$3x = 1 + 5$$

$$3x = 6$$

$$x = 2$$

Pt of int
(2, 3)
x y

$$y_2 = x + 1$$

$$y_2 = 2 + 1$$

$$y = 3$$

Apr 27-11:57 AM

Solve Algebraically Steps

$$y_1 = 3x + 6 \quad \& \quad y_2 = 8x - 10$$

Apr 25-7:43 AM

5.9 Solving the Pt of Int .notebook

April 26, 2013

Solve Algebraically Steps

$y = 3x + 6$ & $y = 8x - 10$

$y_1 = y_2$ i) Set up 1

$3x + 6 = 8x - 10$ i) Sub eqns

$6 = 8x - 3x - 10$ i) isolate

$6 = 5x - 10$

$6 + 10 = 5x$

$16 = 5x$

$\frac{16}{5} = x$

ii) Solve for y

$y_1 = 3x + 6$

$y_1 = 3(\frac{16}{5}) + 6$

$y_1 = \frac{48}{5} + 6$

$y_1 = \frac{48}{5} + \frac{30}{5}$

$y_1 = \frac{78}{5}$

iii) State P:

Apr 25-7:43 AM

$y = 4x - 3$ $2x + 3y = 6$

$3y = -2x + 6$

$y_1 = y_2$ $y_2 = -\frac{2}{3}x + 2$

$3(4x - 3) = (-\frac{2}{3}x + 2)$

$12x - 9 = -\frac{2}{3}x + 2$

$12x - 9 = -2x + 6$

$12x + 2x = 6 + 9$

$14x = 15$

$x = \frac{15}{14}$

$y = 4x - 3$

$y = 4(\frac{15}{14}) - 3$

$y = \frac{60}{14} - 3$

$y = \frac{60}{14} - \frac{42}{14}$

$y = \frac{18}{14}$

$(\frac{15}{14}, \frac{18}{14})$

Apr 27-2:30 PM

Hmk. p. 326-327 q. 1, 2 a)c)e)m)o)q), 4-7, 9-12

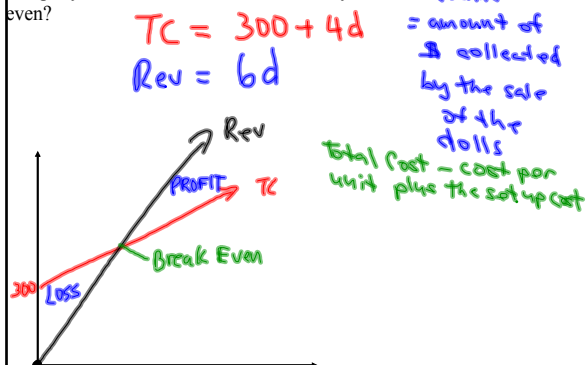
Apr 25-7:46 AM

Apr 25-1:52 PM

Day 2

Interpreting the Point of Intersection

Find the Break Even Point for a toy doll manufacturer. The company has a set-up cost of \$300 and a manufacturing cost of \$4 per doll. If the company sold the doll's for \$6, how many dolls would it take to break even?



Apr 27-2:43 PM

$TC = 300 + 4d$ $Rev = 6d$

$y_1 = 4x + 300$ $y_2 = 6x$

$y_1 = y_2$

$4x + 300 = 6x$

$300 = 6x - 4x$

$\frac{300}{2} = \frac{2x}{2}$

$150 = x$

$y_2 = 6x$

$y_2 = 6(150)$

$y_2 = 900$

At of Intersection $(150, 900)$

Apr 27-2:54 PM

At 150 dolls the toy doll manufacturer will break even at \$900. Before 150 dolls the company will lose money. After 150 dolls the company will earn a profit.

Apr 27-3:01 PM

pls q 6 Cost Comparison $x = \# \text{ of movies}$

Movies to Go = $2.50x$
 Video rentals = $2.00x + 10$

$y_1 = 2.50x$ $y_2 = 2.00x + 10$
 $y_1 = y_2$
 $2.50x = 2.00x + 10$
 $2.50x - 2.00x = 10$
 $.50x = 10$
 $\frac{.50x}{.50} = \frac{10}{.50}$
 $x = 20$

$y_1 = 2.50x$
 $y_1 = 2.50(20)$
 $y = 50$

$(20, 50)$
 At 20 movies both stores will charge \$50. At less than 20 movies Movies to Go is cheapest. After 20 movies Video rentals is cheapest.

$p150 \{ 159 \text{ q } 7, 9, 10 \}$

Apr 27-3:05 PM